

FIG. 1

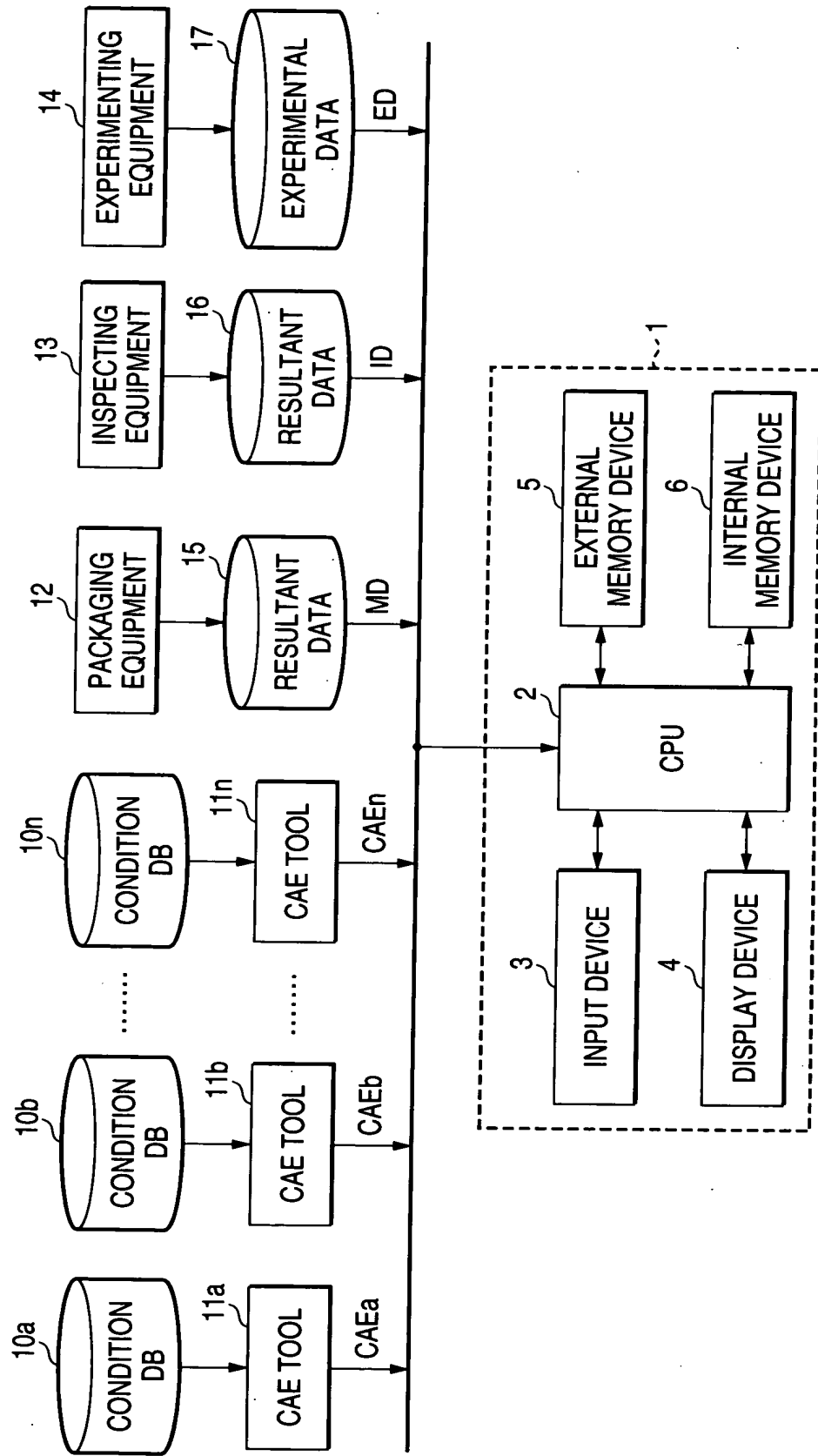


FIG. 2

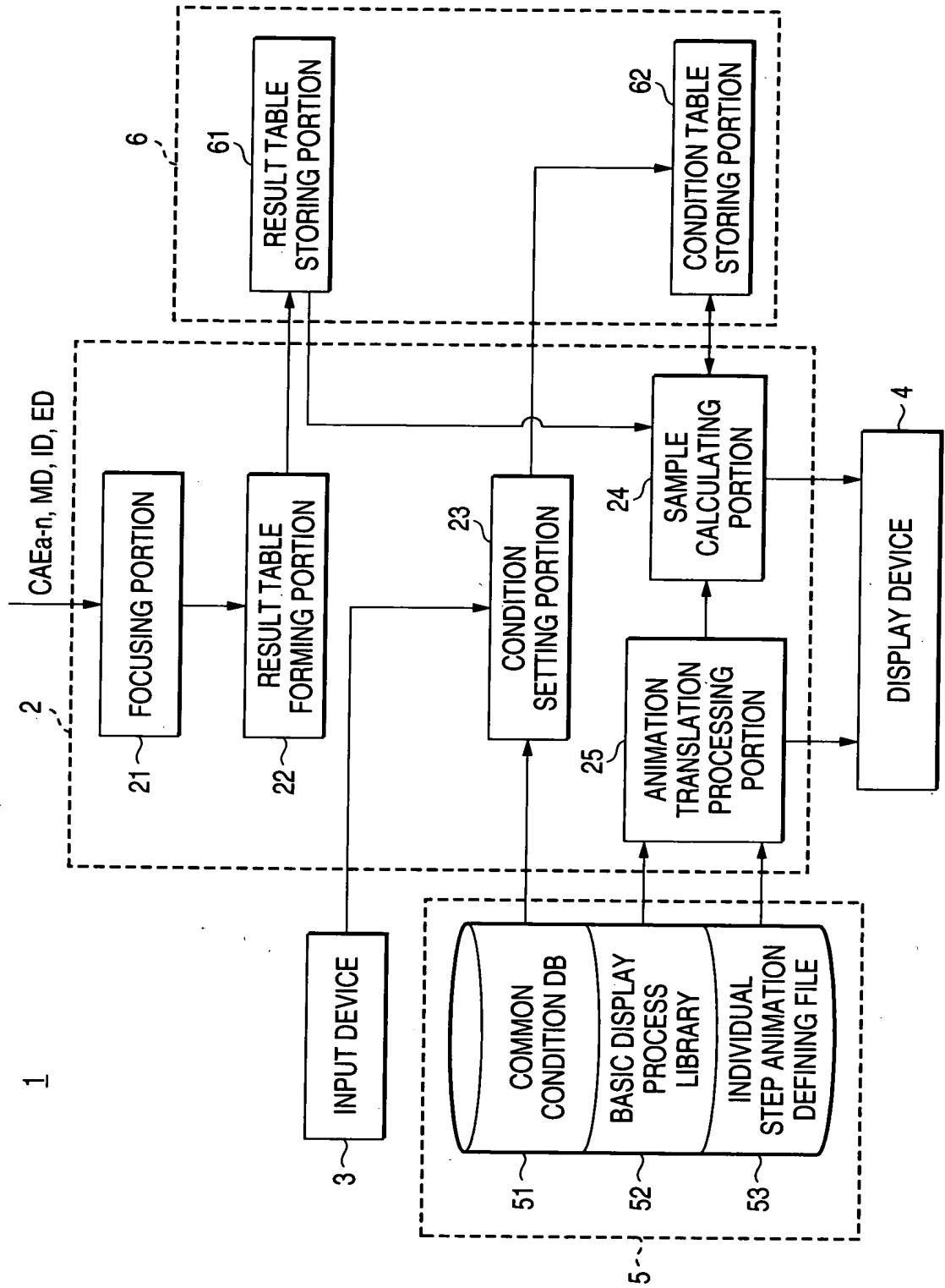


FIG. 3

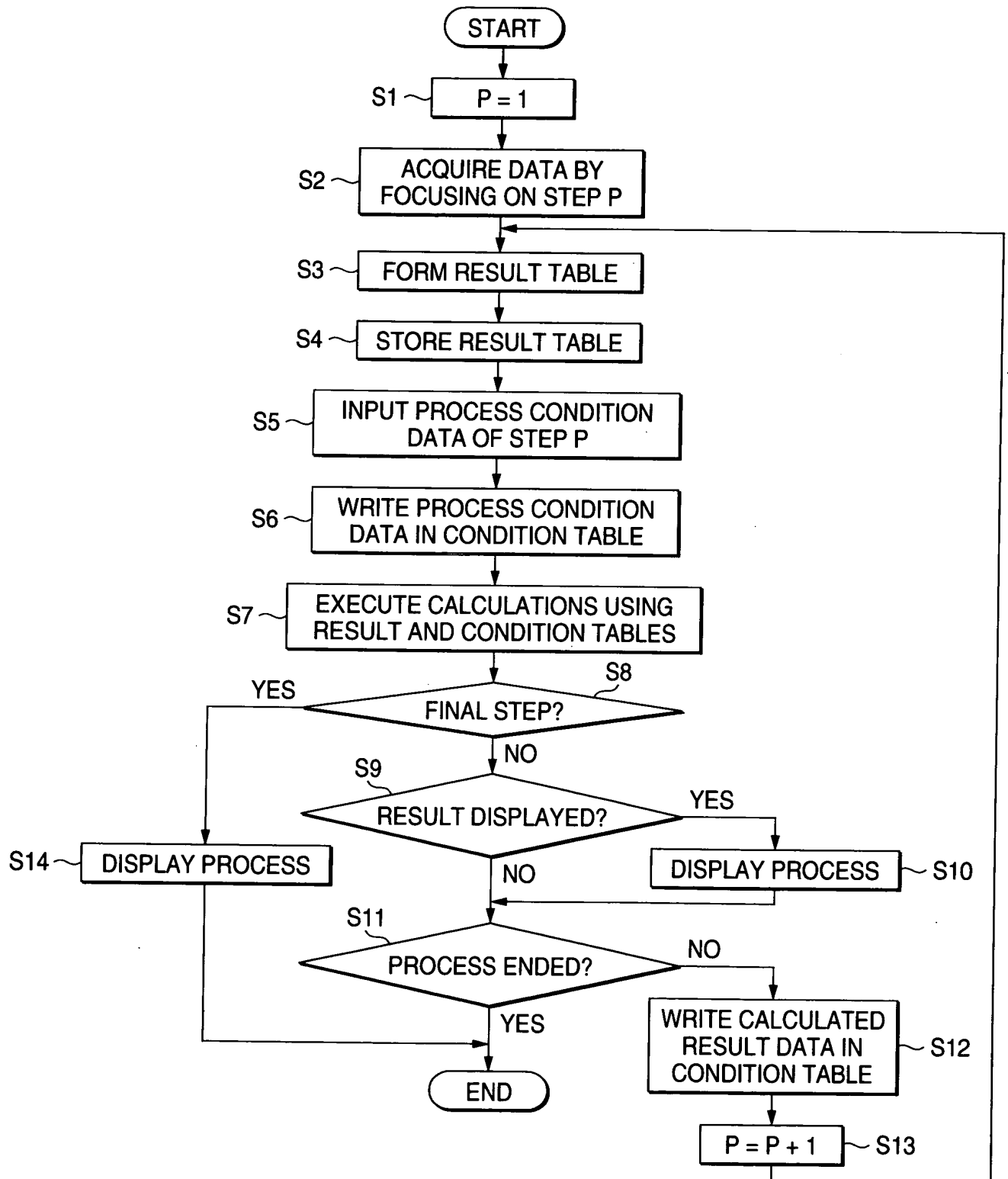


FIG. 4

CONDITION DATA	SOLDER CONDITIONS	VISCOSITY	Pa · s	20	40	60	80	100
		PARTICLE SIZE	μm	30	30	30	30	30
		FLUX	%	10	10	10	10	10
		MATERIAL	-	SnAgCu	SnAgCu	SnAgCu	SnAgCu	SnAgCu
	PRINTING MASK CONDITIONS	OPENING PORTION SIZE (x, y)	mm	0.5*0.5	0.5*0.5	0.5*0.5	0.5*0.5	0.5*0.5
		THICKNESS	mm	0.15	0.15	0.15	0.15	0.15
		PRINTING PRESSURE	Pa	25000	25000	25000	25000	25000
		SQUEEGEE ANGLE	°	70	70	70	70	70
	OBJECT SUBSTRATE	SQUEEGEE SPEED	mm/s	40	40	40	40	40
		PAT SIZE (x, y)	mm	0.6*0.6	0.6*0.6	0.6*0.6	0.6*0.6	0.6*0.6
		CLEARANCE TO PRINTING MASK	μm	40	40	40	40	40
		SOLDER SIZE (x, y)	mm	0.6*0.6	0.5*0.5
RESULT DATA	SOLDER PRINTED RESULTS	THICKNESS	mm	0.1	0.15
		POSITION VARIATION (STANDARD DEVIATION)	mm	0.05	0.05

FIG. 5

[illegible]

FIG. 6

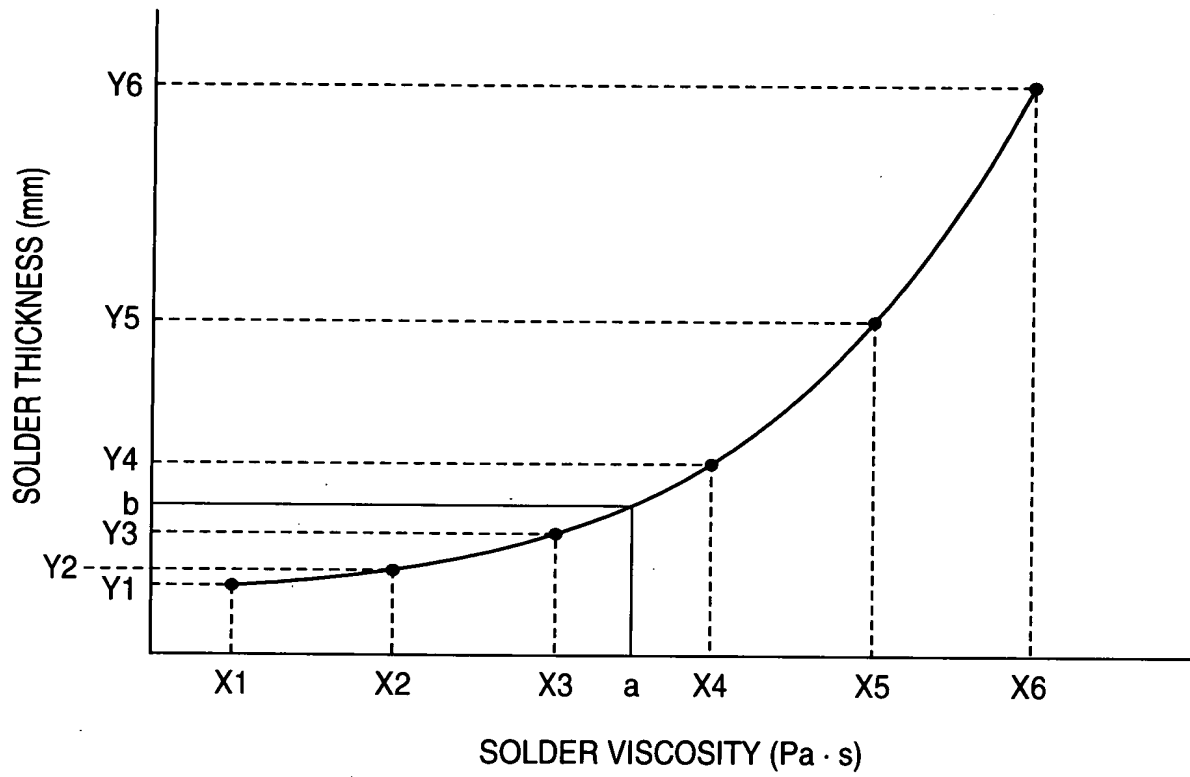


FIG. 7

CALCULATED RESULT DATA	SOLDER PRINTING RESULT	SOLDER SIZE (x, y)	mm	0.55*0.55
		THICKNESS	mm	0.125
		POSITION VARIATION (STANDARD DEVIATION)	mm	0.05
		MATERIAL	-	SnAgCu
		VISCOSITY	Pa · s	70

FIG. 8

CONDITION DATA	PARTS CONDITIONS	PARTS SIZE (x, y, z)	mm	1.0*0.5*0.2	1.0*0.5*0.2	1.0*0.5*0.8	1.0*0.5*1.0	....
		PARTS WEIGHT	g	....	0.1	0.2	....	....
MOUNTING DEVICE CONDITIONS	MOUNTING DEVICE CONDITIONS	PARTS SUCTION POSITION (x, y)	mm	....	(0, 0)	(0, 0)	....	....
		NOZZLE TYPE	-	....	A	A	....	....
		SUCTION HEIGHT	mm	....	50	50	....	....
		MOUNTING SPEED (TYPE)	-	....	a	a	....	....
SOLDER PRINTING CONDITIONS	SOLDER PRINTING CONDITIONS	SOLDER SIZE (x, y)	mm	....	0.55*0.55	0.55*0.55	....	....
		THICKNESS	mm	....	0.125	0.125	....	....
		POSITION VARIATION (STANDARD DEVIATION)	mm	....	0.05	0.05	....	....
		VISCOSITY	Pa · s	....	70	70	....	....
		MATERIAL	-	....	SnAgCu	SnAgCu	....	....
RESULT DATA	MOUNTED RESULT	POSITIONAL VARIATION (STANDARD DEVIATION)	mm	....	0.1	0.08	....	....

FIG. 9

PROCESS CONDITION DATA	PARTS CONDITIONS	PARTS SIZE (x, y, z)	mm	1.0*0.5*0.4
		PARTS WEIGHT	g	0.1
	MOUNTING DEVICE CONDITIONS	PARTS SUCTION POSITION (x, y)	mm	(0, 0)
		NOZZLE TYPE	-	A
		SUCTION HEIGHT	mm	50
		MOUNTING SPEED (TYPE)	-	a
PRE-STEP CALCULATED RESULT DATA	SOLDER PRINTING CONDITIONS	SOLDER SIZE (x, y)	mm	0.55*0.55
		THICKNESS	mm	0.125
		POSITION VARIATION (STANDARD DEVIATION)	mm	0.05
		MATERIAL	-	SnAgCu
		VISCOSITY	Pa · s	70

FIG. 10

CONDITION DATA	REFLOW FURNACE CONDITIONS	ZONE 1 UPPER TEMPERATURE	°C	175	180	185	190
		ZONE 1 LOWER TEMPERATURE	°C	165	170
		ZONE 2 UPPER TEMPERATURE	°C	165	170
		ZONE 2 LOWER TEMPERATURE	°C	165	170
		ZONE 3 UPPER TEMPERATURE	°C	170	175
		ZONE 3 LOWER TEMPERATURE	°C	170	175
		ZONE 4 UPPER TEMPERATURE	°C	205	210
		ZONE 4 LOWER TEMPERATURE	°C	215	220
		ZONE 5 UPPER TEMPERATURE	°C	255	260
		ZONE 5 LOWER TEMPERATURE	°C	265	270
		CARRYING SPEED	m/min	1.3	1.3
		SOLDER SIZE (x, y)	mm	0.55*0.55	0.55*0.55
		THICKNESS	mm	0.125	0.125
		POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.05	0.05
		MATERIAL	-	SnAgCu	SnAgCu
PARTS CONDITIONS	SOLDER PRINTING CONDITIONS	VISCOSITY	Pa · s	70	70
		PARTS SIZE (x, y, z)	mm	1.0*0.5*0.4	1.0*0.5*0.4
		PARTS WEIGHT	g	0.1	0.1
		POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.1	0.1
		POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.04	0.03
RESULT DATA	REFLOW RESULT	TEMPERATURE PROFILE	-	γ	β

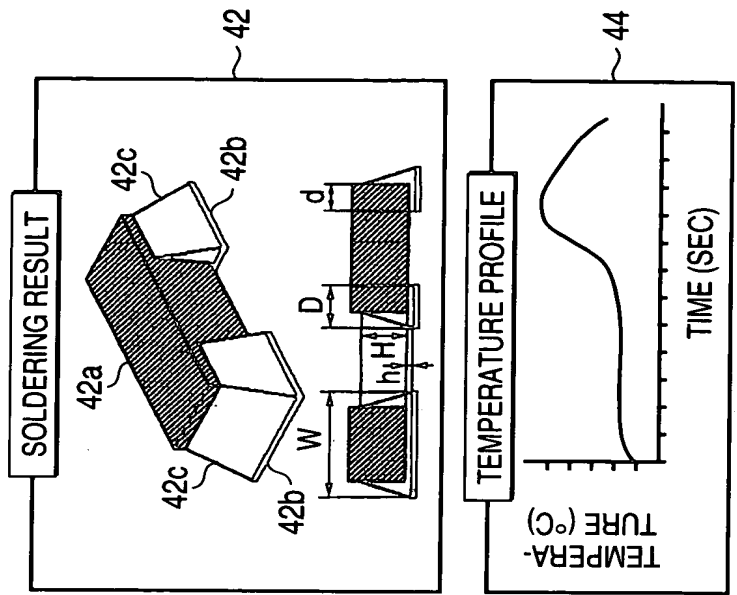
FIG. 11

PROCESS CONDITION DATA	REFLOW FURNACE CONDITIONS	ZONE 1 UPPER TEMPERATURE	°C	185
		ZONE 1 LOWER TEMPERATURE	°C	170
		ZONE 2 UPPER TEMPERATURE	°C	170
		ZONE 2 LOWER TEMPERATURE	°C	170
		ZONE 3 UPPER TEMPERATURE	°C	175
		ZONE 3 LOWER TEMPERATURE	°C	175
		ZONE 4 UPPER TEMPERATURE	°C	210
		ZONE 4 LOWER TEMPERATURE	°C	220
		ZONE 5 UPPER TEMPERATURE	°C	260
		ZONE 5 LOWER TEMPERATURE	°C	270
		CARRYING SPEED	m/min	1.3
PRE-STEP CALCULATED RESULT DATA	SOLDER PRINTING CONDITIONS	SOLDER SIZE (x, y)	mm	0.55*0.55
		THICKNESS	mm	0.125
		POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.05
		MATERIAL	-	SnAgCu
		VISCOSITY	Pa · s	70
	PARTS CONDITIONS	PARTS SIZE (x, y, z)	mm	1.0*0.5*0.4
		PARTS WEIGHT	g	0.1
		POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.1

FIG. 12

SIMULATION RESULT			
REFLOW RESULT	POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.03
	MAXIMUM TEMPERATURE	°C	250
	MAXIMUM TEMPERATURE DURATION TIME	SEC	4
FILET SHAPE	H	mm	0.3
	h	mm	0.1
	W	mm	0.8
	D	mm	0.4
	d	mm	0.1

11/12



SIMULATION CONDITION									
SOLDER PRINTING CONDITIONS	SOLDER SIZE (x, y)	mm	0.56*0.56						
	THICKNESS	mm	0.125						
	POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.05						
	MATERIAL	-	SnAgCu						
PARTS CONDITIONS	VISCOSITY	Pa · s	70						
	PARTS SIZE (x, y, z)	mm	1.0*0.5*0.4						
	PARTS WEIGHT	g	0.1						
SUBSTRATE CONDITION	POSITIONAL VARIATION (STANDARD DEVIATION)	mm	0.1						
	PAT SIZE (x, y)	mm	0.6*0.6						
REFLOW FURNACE CONDITIONS	ZONE 1 UPPER TEMPERATURE	°C	185						
	ZONE 1 LOWER TEMPERATURE	°C	170						
	ZONE 2 UPPER TEMPERATURE	°C	170						
	ZONE 2 LOWER TEMPERATURE	°C	170						
	ZONE 3 UPPER TEMPERATURE	°C	175						
	ZONE 3 LOWER TEMPERATURE	°C	175						
	ZONE 4 UPPER TEMPERATURE	°C	210						
	ZONE 4 LOWER TEMPERATURE	°C	220						
	ZONE 5 UPPER TEMPERATURE	°C	260						
	ZONE 5 LOWER TEMPERATURE	°C	270						
CARRYING SPEED		m/min	1.3						

FIG. 13

